

Claims

1. An electroluminescent material which emits light in the ultra-violet region of the spectrum which comprises an organic metallic complex of a transition metal,
5 lanthanide or actinide and a polyamine ligand.
2. An electroluminescent material as claimed in claim 1 in which the metal is gadolinium in the III state.
- 10 3. An electroluminescent material as claimed in claim 1 or 2 in which the ligand is ethylene diamine tetramine, DCTA, DTPA or TTHA.
4. An electroluminescent material as claimed in claim 3 in which the complex is in the form of a salt .
- 15 5. An electroluminescent material as claimed in claim 4 in which the complex is in the form of an alkali metal salt
6. An electroluminescent material as claimed in claim 4 in which the salt is a
20 transition metal, lanthanide or actinide salt
7. An electroluminescent material as claimed in claim 4 in which the salt is $\text{Ln}^*[\text{Ln}(\text{EDTA})]_3$ where Ln and Ln^* is selected from transition metals, lanthanides and actinides.
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8. An electroluminescent material as claimed in claim 7 in which Ln and Ln^* is selected from Gd, Sm, Eu, Tb, Dy.
9. An electroluminescent material as claimed in any one of claims 1, 4 or 5 in which
30 the metal complex is $\text{Gd}[\text{Eu}(\text{EDTA})]_3$.

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10. An electroluminescent device which comprises a transparent substrate on which is deposited an electroluminescent material as claimed in any one of the preceding claims.
- 5 11. An electroluminescent device as claimed in claims 1 to 10 in which the transparent substrate is a conductive glass or plastic material which acts as the anode.
12. An electroluminescent device as claimed in any one of claims 10 to 11 in which there is a hole transporting layer deposited on the transparent substrate and the
10 electroluminescent material is deposited on the hole transporting layer.
13. An electroluminescent device as claimed in any one of claims 10 to 12 in which there is a hole transporting material mixed with the electroluminescent material in a ratio of 5 to 95% of the electroluminescent material to 95 to 5% of the hole
15 transporting compound.
14. An electroluminescent device as claimed in claim 12 or 13 in which the hole transporting layer is an aromatic amine complex.
- 20 15. An electroluminescent device as claimed in claim 14 in which the hole transporting layer is poly(vinylcarbazole), N,N'-diphenyl-N,N'-bis (3-methylphenyl) -1,1' -biphenyl -4,4'-diamine (TPD) or polyaniline.
16. An electroluminescent device as claimed in any one of claims 11 to 15 in which
25 there is a metal anode in contact with the electroluminescent material.
17. An electroluminescent device as claimed in any one of claims 10 to 16 in which there is a layer of an electron injecting material between the cathode and the electroluminescent material layer

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18. An electroluminescent device as claimed in any one of claims 10 to 17 in which an electron injecting material is mixed with the electroluminescent material and co-deposited with it.
- 5 19. An electroluminescent device as claimed in claim 17 or 18 in which the electron injecting material is a metal complex or oxadiazole or an oxadiazole derivative.
20. An electroluminescent device as claimed in claim 19 in which the electron injecting material is an aluminium quinolate or 2-(4-biphenyl)-5-(4-tert-butylphenyl)-
10 1,3,4 oxadiazole.
21. An electroluminescent device as claimed in any one of the preceding claims 10 to 20 in which the anode is a metal.
- 15 22. An electroluminescent device as claimed in claim 21 in which the anode is a aluminium, magnesium, lithium, calcium or a magnesium silver alloy.
23. An electroluminescent device as claimed in any one of the preceding claims 10 to 22 in which there are a plurality of layers of electroluminescent material.
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24. An electroluminescent device as claimed in any one of the preceding claims 10 to 23 in which there is a layer or layers which incorporates a dye which fluoresces in ultra-violet light to give emitted light in the colour spectrum.
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